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Dear Sir:

New chairman of the Joint Congressional Committee on Atomic Energy is Representative W. Sterling Cole, New York, who was selected by the Committee last week. It was the end of a two month deadlock, involving 6 successive meetings, with the Committee splitting 8 to 8; Senate members insisted on the election of Senator Bourke B. Hickenlooper and the House delegation favored Mr. Cole. House members felt that election of another Senator to head the Committee (the late Senator Brien McMahon headed it previously) would delegate them to an inferior position on the equal-membered Joint Committee. The dispute was settled by top leaders of the House and Senate. Agreement was also reached that the chairmanships of all joint committees be rotated between the House and Senate every two years.....Meanwhile, Representative Carl Hinshaw, who is chairman of the sub-committee (of the Joint Committee) concerned with the development of nuclear reactors for economic power production, said hearings would be held within two or three weeks to discuss private industry's use of nuclear reactors to produce economic power.

Another nuclear detonation at the USAEC's continental proving ground, near Las Vegas, Nev., occurred in the last fortnight; it was the twenty-third such detonation in the United States. As in other nuclear experiments, the data obtained will be utilized to enlarge present knowledge of utilizing fissionable materials for most efficient explosive means.....And to accommodate this rapidly expanding program of developing and testing nuclear weapons, the USAEC's Pacific Proving Ground in the Marshall Islands is being enlarged. It is now to include Bikini as well as Eniwetok Atoll. Construction of technical facilities at Bikini will begin shortly. Bikini was last used in 1946 for testing military effects of conventional atomic bombs. In this new program, Eniwetok, where atomic bombs had previously been detonated, will become the headquarters and main operating base for the Pacific Proving Ground. Detonations will be on Bikini, exclusively, which allows adequate protection for testing the new fusion bomb (the so-called hydrogen bomb) as it is 180 miles east of Eniwetok. This new set-up is the consequence of continued advances made in the art of producing a detonation through fusion, and the need for conducting experiments along those lines.

A two day convocation April 10th and 11th, in Cleveland, sponsored by Case Institute of Technology, will discuss "The Atomic Age--Challenge to Free Men". The topic was provided by a declaration in President Eisenhower's inaugural address that "science seems ready to confer upon us, as a final gift, the power to erase human life from this planet". Among the speakers at these sessions (familiar with potentialities of nuclear energy) will be Farrington Daniels, president of the American Chemical Society; E. V. Murphree, Standard Oil Development Co.; H. A. Winne, General Electric Co.; Gwilym Price, Westinghouse Electric Corp.; and Karl T. Compton, Massachusetts Institute of Technology.

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BUSINESS NEWS...in the nuclear energy field...

ATOMIC ENERGY & INDUSTRIAL IMPLICATIONS: Real industrial participation in atomic energy is insignificant, if we mean by industrial the use of private risk capital, W. I. Thompson, chief engineer, Walter Kidde Nuclear Laboratories, told a meeting of the American Society of Mechanical Engineers, this past March 23rd at Westbury, N. Y. He went on to point out that until the emergency Atomic Energy Act of 1946 (under which no private firm can own a useful power reactor or fissionable material, and no one can have patent protection for his inventions in the field) is amended or repealed, it is hopeless to look for industry to come in on a risk basis or to make serious proposals. Fortunately, he said, the prospects are good for changes in the act this year.

Economic surveys, he pointed out, have shown that there can be a counterpart of the present weapons plant to produce commercial power, and that this counterpart will in some ways be related to the weapons plant. That is, it will require similar engineering skills, applied this time to reduce costs. With the rapidly increasing demand for power, which is about 10% per year, this is likely to be one of the fastest expanding businesses in sight, he stated.

As to the function of engineers in the field of atomic energy, he observed, what does it comprise? The field breaks down, roughly, into three categories: (1) Design of nuclear reactors for various special purposes, (2) Anxiliary equipment associated with reactors, and (3) Design of nuclear fuel elements and methods of manufacture and processing.

Design of nuclear reactors is a highly specialized art, he explained, which calls first of all on physicists and then process engineers, structural engineers, and metallurgists. A number of effective groups are now at work, most of them in national laboratories of the U. S. Atomic Energy Commission.

These groups, he noted, encounter many unusual problems, among them the design of supports for fuel elements, coolant passages, and moderators to withstand heat, corrosion, and temperature stress caused by adsorption of radiation. New materials have been developed--in some cases even specific isotopes where the cost can be borne--to meet the new combination of requirements. Zirconium is one of these new construction materials. Among the less obvious problems is that of control, particularly in the new mobile power reactors which demand great flexibility and safety.

As to auxiliary equipment for reactors, he said, the engineer finds himself on familiar ground, designing structures, pumping equipment, electrical systems, air conditioning, and so forth. But even here he is constantly reminded of the presence of the reactor. The structures may be exposed to radiation which will cause material breakdowns in non-metallics. Pumping equipment may have extreme leakage tolerances to avoid spread of radioactive contaminants, and may have to handle materials which have never before been pumped. Or, the air conditioning equipment may be concerned less with comfort than with trapping radioactive dust.

Concerning the design of fuel elements and the development of methods for manufacture and reprocessing of fuel--he pointed out that this is a major effort in metallurgical engineering. Efforts are underway to find new techniques in extrusion, heat treatment, powder metallurgy, bonding, welding, and brazing, to produce elements which will withstand for a long time the effects of temperature and radiation stress plus corrosion and diffusion.

The activity in isotope separation is less intense than in other fields, he said. In spite of the highly mechanical nature of the uranium 235 and similar plants, this activity is more in the field of the process engineer who is used to thinking in terms of multi-stage fractionation. Processes of less mechanical nature may become important, such as thermal diffusion, distillation, and ion migration in electric fields. Progress in this field will call for versatility and imagination.

As regards scientific manpower--the U. S. Atomic Energy Commission employs about 63,000 people in operations, research and development, of which about 20,000 are scientific, technical, or managerial. Further, the USAEC has taken steps to increase the supply of so-called nuclear engineers by means of a training school at Oak Ridge.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear work...

FROM THE MANUFACTURERS-Model AM-2 Air Monitor is a mobile unit for detecting, recording, and indicating the presence of radioactive materials in air. If dangerous amounts are found, personnel in the area are warned by an alarm bell and flashing lights. Construction embodies filter paper rolled into cylindrical form which is placed in the lead shielded detection chamber, in the center of which is a Geiger-Muller tube. A Roots-Connersville blower draws air from the surrounding areas continuously and pulls it through the filter paper. Radioactivity in the deposited material is detected by the GM tube, and pulses from this tube are indicated on a count rate meter and recorded on an Esterline Angus recorder. This air monitor has three ranges, and an automatic range changing mechanism. When the instrument changes from the low to the middle range, an amber blinking light comes on, and when it shifts to the high range, a red blinking light is lit, and an alarm bell sounds continuously. The device is said to be sensitive to high energy Beta radiation and Gamma radiation.--Nuclear Measurements Corp., 2640 No. Arlington Ave., Indianapolis 18, Ind.

Model D-5 Samson Survey Meter is a redesigned version of this manufacturer's contamination monitor, which is said to provide greater stability and versatility in radioactive surveys. When used with this manufacturer's Model D-5-A and Model D-5-B probes, this new instrument is said to cover radiation ranges from low level alpha contamination to 625 mr/hr gamma radiation. The instrument will monitor flat areas, irregular surfaces, or holes and corners. New design features include a new metal plug-in battery box to simplify maintenance, a roll-over bottom stainless steel screen to minimize contamination traps, and a neon flashing light to indicate when the instrument is in operation...Radioactive Products, Inc., Detroit 26, Mich.

Said to be the most refined "Poppy" instrument made to date, this manufacturer's new Model 2801 is for detecting alpha particle emitting contamination. This instrument, built and tested exactly to Oak Ridge National Laboratory Q-1306 specifications, is used primarily for monitoring and surveying contaminated areas. A panel mounted loudspeaker produces a "pop" for each alpha particle entering the sensitive volume. The instrument, which is compact, is composed of a convenient thin window, single wire, air proportional counter probe, with preamplifier on a twenty-foot cable and an electronic circuit containing a pulse amplifier, power circuit, and loudspeaker. The probe sensitive area is such that it allows a large area to be surveyed rapidly. Background counting rate is said to be less than 20 counts per hour.--Radiation Counter Laboratories, Inc., Skokie, Ill.

New instrument which manufacturer claims will do the work of large complex equipment, yet is available at modest cost, is the Model 112 scintillation counter, which is said to be stable and accurate, and to offer the convenience of being portable. Ranges of this model are 0.025; 0.05; 0.25; 1; 5; and 25 MR/HR. Recommended for medical use in locating brain tumors, diseased thyroids, etc., as well as for scientific and industrial laboratory radioisotope work. --Precision Radiation Instruments, Los Angeles 16, Calif.

NOTES: Dr. Bryant D. Virmani has recently been made director of research of Detectolab, Inc., manufacturers of nuclear accessories and electronic equipment. Dr. Virmani has received the commendation of Dr. Albert Einstein for certain of his ideas.

In an attempt to encourage use by industry in general of nuclear instruments, a "Radioactivity Industrial Applications" contest is being sponsored by Anton Electronics Laboratories, Inc., Brooklyn 37, N.Y. Entries must state a specific industrial problem, and its possible solution through the use of a radioactive source and any instrument or circuit which uses a Geiger counter tube, an integrator tube, or any similar device for detection. A total of $250 in prizes will be awarded; closing date of the contest is this June 15th.

To assist small business firms (such as nuclear instrument manufacturers, electronic equipment people, etc.) to participate in the atomic energy program, the Small Business Administration and the USAEC have now set up a joint program which the agencies believe will be of assistance to such firms. Objectives of the program are to help small firms through exchange of information and procurement opportunities appropriate to their capabilities.

AT U. S. ATOMIC CITIES & CENTERS...major activities...

NATIONAL REACTOR TESTING STATION, Arco, Idaho-The submarine thermal reactor prototype plant has successfully "gone critical", i.e., the nuclear components of the reactor are sustaining an atom fissioning chain reaction. Further testing and operation of this reactor will continue, and gradually the plant will be brought to full power in order to determine the operating characteristics of the similar plant which will power the submarine USS Nautilus, and to train the crew for this vessel. Officials connected with this project expect that such operation will add further to the contributions to reactor technology already made through experimentation, design, and construction of the submarine thermal reactor. This STR plant, and the similar plant for the USS Nautilus, are a joint project of the USAEC's Argonne National Laboratory, Chicago; Westinghouse Electric Corp., as a prime contractor; General Dynamics Corp., as a prime contractor; and numerous sub-contractors. Administrative and technical direction of the project is under the USAEC-Navy group in the USAEC's division of reactor development.

PIKETON, Ohio-A $100 million subcontract, for electrical work at the USAEC's new uranium-235 gaseous diffusion plant, now being built here, has been awarded Reynolds Electric Co., Inc., Albuquerque, N. M., and Newbery Electrical Corp., Los Angeles, Calif. The two firms have combined in a joint venture to handle the work under the subcontract. Based on cost plus a fixed fee, the subcontract was let by Peter Kiewit Son's Co., the general construction contractor on this job. The subcontract covers power wiring, control and instrumentation materials, communications, and lighting systems. Project manager for the combined firms will be John S. Clark; Phil Hutchins will be in charge of engineering and procurement; and A. E. Radford will handle construction work.

OAK RIDGE, Tenn.-Two lumpsum contracts totaling $986,320 for construction of a radiation research facility in the Oak Ridge plant area (plants producing uranium-235 by the gaseous diffusion process), have now been awarded by the USAEC. The facility will be used by Oak Ridge National Laboratory to study radiation scattering from materials suspended in the air. Karl Koch Erecting Co., Inc., New York, received a contract for $500,000 to erect steel on the facility. This steel work will include two double-tower structures 200-feet apart. Each structure will consist of a pair of steel lattice columns nine feet square and 315-feet high, joined at the top with a lattice truss. Koch also will build accessories such as platforms, hoists, lighting systems, conduits, guys, tie cables and a lightning protection system. Under the other contract, which was awarded Charles Hobson Co., Inc., Knoxville, Tenn., site preparation, and concrete work will be done, and utilities installed.

By a 4-to-1 vote, a proposal has been rejected by residents of Oak Ridge that the town incorporate, and adopt self-rule and a city charter. The vote was taken to indicate that the residents preferred continued Federal maintenance, rather than self-rule with its responsibilities.

IONIZING RADIATION...news and notes.

Gamma Radiation to Promote Chemical Reactions- Use of gamma radiation from a 10 kilocurie source of cobalt-60 to promote chemical reactions of certain types was described recently by L. E. Brownell, University of Michigan, in a paper delivered before the American Institute of Chemical Engineers, meeting at Biloxi, Miss. Dr. Brownell told the meeting that gamma radiation is not a substitute for heat or other forms of energy, but that it can be used to promote those reactions which provide an excess of energy as a result of the reaction and which do not proceed under normal conditions. One of the reactions investigated by Dr. Brownell and his associates was the substitution chlorination of benzene to produce benzene hexachloride. Ordinarily, BHC is synthesized with the aid of ultraviolet radiation to promote the reaction. An advantage of gamma radiation over ultraviolet or beta radiation is the great penetrating ability of gamma rays. Dr. Brownell pointed out that the reaction can be promoted by gamma radiation throughout the entire depth of a vessel, while ultraviolet and beta radiation are absorbed at the surface only. This requires mixing and recycling, but only a single pass is needed with gamma radiation.

RAW MATERIALS...radioactive minerals for nuclear work...

CANADA-Still further encouraging results are being shown by drilling on the property of Gunnar Gold Mines in Saskatchewan, and this is reflected in the activity of Gunnar's stock on the Canadian exchange, where it has gone to new highs. Now, an area some 500-feet square is being drilled on a grid pattern at 75-foot intervals. Core intersections from the first 15 holes have averaged $29.85 in uranium oxide (which comes to $7.25/lb.) and the average ore thickness appears to be 190-feet. It appears from drilling results that the Gunnar orebody is the biggest so far uncovered. In addition, the major portion of the orebody may lend itself to open pit mining, as the thickest so far disclosed is covered with only a moderate covering of earth and rock.

An active season on at least four of its six properties in the uranium fields of Northern Saskatchewan is planned by Baska Uranium Mines. The program includes underground work, drilling from surface, and prospecting. By the end of April, it is hoped to have a drill on the ground adjoining Eldorado. Prospectors will also be out before the end of the month on the more recently acquired ground in the St. Mary's Channel area, which has been brought to prominence by the discoveries of Gunnar Mines.

An increase in capitalization by Nisto Mines has now provided the company with some $170,000 with which it intends to push a renewed underground exploration program at its Black Lake uranium property in Northern Saskatchewan.

Iso Uranium Mines, with property adjoining the main Gunnar ground on the east, plans to start diamond drilling on both its central and northwest zones, where encouraging pitchblende values were encountered in preliminary surface work late last Fall. On the financial side, Iso has some $500,000 in its treasury, at the present time.

A new firm, Maree Uranium, Ltd., has been formed by Mindus Corp. on five uranium claims on the southwest shore of Milliken Lake, four miles northeast of the main Gunnar Gold group at St. Mary's Channel, Lake Athabaska. The property was acquired from Gunnar, which retained a vendor interest of 300,000 shares. Columinda Metals will have a substantial interest in the financing. Five pitchblende showings are said to have been revealed by preliminary prospecting.

Orchan Uranium Mines, a new firm recently incorporated to explore the Noranda ground in the Crackingstone Peninsula, has already begun construction of its camp and expects that drilling will get underway by the middle of this month. Its 10-claim group adjoins the Dome-controlled Crackingstone Mines on the west; the firm feels that the presence of at least three known radioactive zones there warrants a thorough program of exploration.

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear energy field...

Uranium, Plutonium and Industry. A summary of the U. S. atomic energy program, prepared by the American Society of Mechanical Engineers' nuclear energy application committee. Divisions of the book include: Production; Research & Development; Applications; and Information Sources. 47 pages--American Society of Mechanical Engineers, New York 18. ($1.50)

The New Force, by Ralph Lapp. A general survey of the known facts and policy questions covering atomic energy. Covers political and social aspects. 238 pages. -- Harper & Bros., New York. ($3.00)

You and the Atom, or the Jones' Story, by J. Kessler. Although this volume contains no mathematics, the descriptive approach is very detailed. Chapters covered include: meaning of the atom, molecule, matter; conservation of matter; energy; structure of the atom; etc.--I. Kessler, 264-10 Langston Ave., Glen Oaks, L.I., N.Y. ($1.60).

United States Civil Defense: New issues in the technical manual series include No. 11-1, organization and operation of civil defense casualty services (20¢) and No. 13-1, utilization and control of streets and highways in civil defense emergencies. (15¢)-- Superintendent of Documents, Washington, D. C.

Sincerely,

The Staff
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